

WHAT IS CLAIMED IS:

1. A monolithic circuit chip for use in an imaging optical code reading device having a radio frequency (RF) communication capability, wherein the circuit chip comprises:

- 5 a complementary metal oxide semiconductor (CMOS) imager;
CMOS microprocessing circuits for receiving image data from the CMOS imager and data from an RF receiver; and
a memory for providing non volatile data storage on the circuit chip.

2. The monolithic circuit chip of claim 1, wherein shared circuitry on the circuit chip performs signal compression for both RF communication signals and data signals from the CMOS imager.

3. The monolithic circuit chip of claim 1, wherein the RF receiver comprises an RF transmitter and wherein images captured by the CMOS imager are communicated over an air interface using the RF transmitter.

4. The monolithic circuit chip of claim 1, wherein the RF receiver operates in accordance with a radio access protocol selected from the group consisting of:

- Bluetooth;
IEEE 802.11; and
20 HomeRF.

5. The monolithic circuit chip of claim 1 further comprising:
interface circuitry for providing power and control signals to the CMOS imager and the RF receiver and for converting analog RF signals and analog image signals into digital signals,

wherein the interface circuitry provides the digital signals to the microprocessing circuit.

6. The monolithic circuit chip of claim 1, wherein the circuit chip is formed using CMOS techniques.

5 7. The monolithic circuit chip of claim 1, wherein the memory is ferroelectric random access memory.

8. The monolithic circuit chip of claim 1, wherein the memory is flash memory.

9. The monolithic circuit chip of claim 1, wherein the memory is
10 E²PROM.

10. A monolithic circuit chip comprising:
a sensor array;
a digitizer for digitizing the captured images; and
decoder for decoding the digitized images.

11. The monolithic circuit chip of claim 10, wherein the sensor array, digitizer and decoder are formed on the monolithic circuit chip using complementary metal oxide semiconductor (CMOS) techniques.

12. The monolithic circuit chip of claim 10, wherein the decoder comprises a processor and memory.

13. The monolithic circuit chip of claim 10, wherein the sensor array is a linear array of cells for capturing light reflected by a one dimensional bar code symbol.

14. The monolithic circuit chip of claim 10, wherein the sensor array is an area sensor array for capturing two dimensional images.

15. A method for communicating image information using a monolithic circuit chip comprising the steps of:

capturing, by a digital imager, an image;

processing the image by a processor using a ferroelectric memory; and

10 transmitting, by a radio frequency transmitter, the processed image over an air-interface, wherein the digital imager, processor and radio frequency transmitter are formed on the monolithic circuit chip.

16. The method of claim 15, wherein the image is of a parking space, the method further comprising the steps of:

15 receiving the processed image; and

determining whether the parking space is occupied using the processed image.

17. The method of claim 15, further comprising the steps of:

20 receiving, by a radio frequency receiver formed on the monolithic circuit chip, identification information;

determining an amount of time that an automobile associated with the identification information is parked in a parking space; and

billing an owner of the automobile using the identification information based on the determined amount of time.

18. The method of claim 15, further comprising the steps of:
receiving, by a radio frequency receiver, the processed image;
determining whether a parking space is occupied using the processed image;
and
5 transmitting information to an automobile of the location of the parking
space if it is determined that the parking space is not occupied.